



## INCINERATOR INFORMATION REQUEST

Please complete this Incinerator Information Request as completely as possible. If you are unable to respond to an item as it is stated, please provide any information you believe may be related. Attach drawings whenever appropriate and additional pages as needed.

### GENERAL INFORMATION

Does this facility practice heat recovery?

☐ YES

☐ NO

If yes, please answer the following:

What is the steam production rate [lb/hr]?

What is the steam temperature [°F]?

What is the steam pressure [psig]?

What use is made of the steam?

### INCINERATOR INFORMATION AND WASTE FEED CHARACTERISTICS

Please complete this section for each incinerator that burns waste.

Incinerator type:

☐ Excess Air Design

☐ In-line hearth

☐ Rotary kiln

☐ Retort hearth

☐ Controlled air (i.e., "starved" air in primary chamber)

☐ Other

Incinerator ID/Serial Number:

Incinerator Manufacturer:

Incinerator Model Number:

Maximum Rated Design Capacity [lb waste/hr]:

Heat release rate that design capacity is based on, BTU/lb:

Waste heat boiler manufacturer, if applicable:

Heat Boiler Model Number:

Please provide copies of engineering drawings of the incinerator showing the configuration of the chambers and locations of burners and thermocouples. If engineering drawings are unavailable, then diagrams showing the appropriate information are acceptable. In addition, please provide a copy of the incinerator design specifications including temperature set points and airflow settings.

For waste fed to the incinerator, please provide the following information and indicate whether values are measured or estimated:

Approximate quantity of total waste incinerated: \_\_\_\_\_lb/hr \_\_\_\_\_tons/yr

Approximate percentage of total waste incinerated that is:

%	infectious waste	%	non-coated paper waste
%	pathological waste	%	non-infectious human/animal remains (contained in chlorine-free containers) waste
%	untreated wood waste	%	general refuse

Approximate percentage of the total waste volume that comes from each of these sources:

%	operating rooms	%	laboratories
%	patient care rooms	%	pharmacy
%	general office refuse	%	cafeteria refuse
%	pathology	%	other - specify:

Approximate quantity of waste received from sources outside this facility to be incinerated: \_\_\_\_\_ tons per year

If waste is received from sources outside this facility, please indicate below the sources of this waste:

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If you have conducted a comprehensive inventory or chemical analysis of the wastes fed to your incinerator, please enclose a copy of the results.

Does the incinerator include a liquid waste injection nozzle or burner? ☐ YES ☐ NO

If yes, please indicate what material(s) is (are) injected:

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Number of chambers: \_\_\_\_\_

Volume [ft<sup>3</sup>] and retention time [seconds] of all chambers downstream of primary:

	Volume	Retention Time	
		Design	Measured
Secondary			
Tertiary			
Other			

Please provide the combustion air (percent of stoichiometric) for each chamber of the incinerator:

Primary (ignition)	Secondary (combustion)	Tertiary (if applicable)

Type of auxiliary fuel burned: \_\_\_\_\_

Amount of auxiliary fuel used annually: \_\_\_\_\_

Describe conditions under which auxiliary burners are used:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

What type of charging System is used:

- ☐ Manual                      ☐ Top loader  
☐ Hopper ram feeder    ☐ Other – Specify:

Please provide the following operating information:

Number of hours of operation per day: \_\_\_\_\_

Number of days of operation per year: \_\_\_\_\_

Does this incinerator operate on a batch, intermittent, or continuous cycle?

- ☐ Single batch feed (single load to incinerator each operating cycle)  
☐ Intermittent duty (no continuous ash removal)  
☐ Continuous duty (continuous ash removal)

#### *BATCH OPERATION CYCLE*

(identify on the design layout of incinerator, where and how the door lockout mechanism operates)

Frequency of loading [load/day]: \_\_\_\_\_

Average size of load [pounds/load]: \_\_\_\_\_

Frequency of startups [startups/yr]: \_\_\_\_\_

Duration of operating cycle [in hours]: \_\_\_\_\_

<u>Steps</u>	<u>Duration</u> [hrs/min]
Waste loading	
Secondary chamber preheat	
Burndown	
Cooldown	
Ash clean out	

Minimum secondary chamber preheat temperature [°F]: \_\_\_\_\_

Normal operating temperature range: Primary chamber [°F]: \_\_\_\_\_ to \_\_\_\_\_  
Secondary chamber, [°F]: \_\_\_\_\_ to \_\_\_\_\_

Please provide examples of temperature strip charts for a typical cycle, if available.

*INTERMITTENT-DUTY CYCLE*

Frequency of startups [startups/yr]: \_\_\_\_\_  
Average charge rate [charges/h]: \_\_\_\_\_  
Average size of charge [pounds/charge]: \_\_\_\_\_  
Duration of operating cycle [in hours]: \_\_\_\_\_

<u>Steps</u>	<u>Duration</u>
Primary chamber preheat	
Secondary chamber preheat	
Waste loading (initial charge)	
Burndown	
Cooldown	
Ash clean out	

Minimum preheat temperature: Primary secondary [°F]: \_\_\_\_\_  
Secondary chamber [°F]: \_\_\_\_\_  
Normal operating temperature range: Primary chamber [°F]: \_\_\_\_\_  
Secondary chamber [°F]: \_\_\_\_\_

Please provide examples of temperature strip charts for a typical cycle, if available.

Ash removal frequency, No./day: \_\_\_\_\_

*CONTINUOUS OPERATING CYCLE*

Frequency of startups [startups/yr]: \_\_\_\_\_  
Average length of operating cycle [hr/day]: \_\_\_\_\_  
Average charge rate [charges/hr]: \_\_\_\_\_  
Average size of charge [pounds/charge]: \_\_\_\_\_  
Solids retention time in primary chamber [hrs]: \_\_\_\_\_

Minimum preheat temperature: Primary secondary [°F]: \_\_\_\_\_  
Secondary chamber [°F]: \_\_\_\_\_  
Normal operating temperature range: Primary chamber [°F]: \_\_\_\_\_ to \_\_\_\_\_  
Secondary chamber [°F]: \_\_\_\_\_ to \_\_\_\_\_

Please provide examples of temperature strip charts for a typical cycle, if available.

## SPECIAL WASTES

Do you generate any wastes (e.g., use a solvents, cytotoxic wastes) that are characteristic or listed RCRA hazardous wastes as defined in 40 CFR Part 261? ☐ YES ☐ NO

Do you generate any radioactive waste? ☐ YES ☐ NO

If you generate radioactive waste, please indicate the following:

Is any of it incinerated on site? ☐ YES ☐ NO

Is any of it shipped off site for incineration? ☐ YES ☐ NO

Is any of it returned to the manufacturer for disposition? ☐ YES ☐ NO

If radioactive waste is incinerated on site, please indicate the following:

The radio nuclides typically present in the waste:

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The radioactivity levels of the waste [micro curies]:

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The materials containing the radio nuclides:

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The approximate quantity of radioactive materials incinerated [lb/month]:

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If radioactive waste is shipped off site for incineration, please indicate the following:

The destination:

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Is the radioactive material shipped with other medical waste? ☐ YES ☐ NO

The radio nuclides typically present in the waste:

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The approximate quantity of radioactive material shipped [lb/month]:

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## AIR POLLUTION CONTROL EQUIPMENT

Please complete this section for the air pollution control system (APCS) that controls emissions from each medical waste incinerator.

Indicate the types of air pollution control devices installed:

☐ Baghouse (fabric filter) ☐ Electrostatic Precipitator

☐ Wet scrubber

Type: ☐ venturi ☐ packed bed ☐ spray tower

☐ other, specify: \_\_\_\_\_

☐ Dry scrubbing system

Type: ☐ dry injection ☐ spray dryer

☐ other, specify: \_\_\_\_\_

Please provide copies of schematics of the air pollution control system showing the configuration of the equipment and any special features. In addition, please provide a copy of the air pollution control device design specifications including emission guarantees and conditions.

If you have a **wet scrubber (e.g., packed bed, venturi, or spray tower)**, please provide the following information:

Manufacturer: \_\_\_\_\_

Model No.: \_\_\_\_\_

Date of installation: \_\_\_\_\_

Date of startup: \_\_\_\_\_

Material of construction: \_\_\_\_\_

Alkaline reagent: \_\_\_\_\_

Mist eliminator type: \_\_\_\_\_

Provide the following design and operating information on the scrubber:

Reagent feed rate [lb/h]: \_\_\_\_\_

Liquid feed rate [gal/min]: \_\_\_\_\_

Liquid feed pressure [psi]: \_\_\_\_\_

Liquid to gas ratio [gal/10<sup>3</sup>acfm]: \_\_\_\_\_

Stoichiometer ratio of moles of reagent to moles of acid gases based on average HCl and SO<sub>2</sub> at scrubber inlet: \_\_\_\_\_

Pressure drop: \_\_\_\_\_

Scrubber, in. w.c. \_\_\_\_\_

Mist eliminator, in. w.c. \_\_\_\_\_

Design Range	Actual	
	Range	Average

	Design outlet concentration:	Design removal efficiency, percent:
PM	grains/dscf: _____	_____
SO <sub>2</sub>	ppmv: _____	_____
HCl	ppmv: _____	_____

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Manufacturer:		
Model No.:		
Date of installation:	Date of startup:	
Material of construction:		
Alkaline reagent:		
Gas cooling mechanism:	Evaporative (quench)	Dilution air
	Waste heat boiler	Other (specify):

Provide the following design and operating information on the scrubber (if applicable):	Design Range	Actual	
		Range	Average
Reagent feed rate [lb/h]:			
Liquid feed rate [gal/min]:			
Liquid to gas ratio [gal/10 <sup>3</sup> acfm]:			
Stoichiometer ratio of moles of reagent to moles of acid gases based on average HCl and SO <sub>2</sub> at scrubber inlet:			

	Design outlet concentration:	Design removal efficiency, percent:
PM	grains/dscf:	
SO <sub>2</sub>	ppmv:	
HCl	ppmv:	

Manufacturer: \_\_\_\_\_  
 Model No.: \_\_\_\_\_  
 Date of startup: \_\_\_\_\_  
 Collection plate material of construction: \_\_\_\_\_  
 Transformer/rectifier set size(s), kVA: \_\_\_\_\_ Plate area, ft<sup>2</sup>: \_\_\_\_\_  
 Ash resistivity, ohm-cm: \_\_\_\_\_  
 Ash resistivity determined by: ☐ Design estimate ☐ Lab analysis ☐ in situ measurement

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Manufacturer: \_\_\_\_\_

Model No.: \_\_\_\_\_

Date of startup: \_\_\_\_\_

Material of construction: \_\_\_\_\_

No. of compartments: \_\_\_\_\_ No. of bags per compartment: \_\_\_\_\_

Bag dimensions: \_\_\_\_\_ Bag material and coating: \_\_\_\_\_

Type of bag cleaning: ☐ Shake ☐ Reverse Air ☐ Pulse Jet

Describe the bag cleaning cycle:

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Provide the following design and operating information:

Pressure drop, in w.c.:

Net air-to-cloth ratio (gas flowrate/on-line bag area) [ft/min]:

Bag life [months]:

Inlet temperature [°F]

Design Range	Actual	
	Range	Average

Design outlet PM grain gr/dscf::

Design PM removal efficiency, percent:

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## COST AND ECONOMIC INFORMATION

What were the initial capital costs of each medical waste incinerator and air pollution control system? (Please indicate reference year for costs.)

Incinerator I. D. Number: \_\_\_\_\_

Base year: 19

Incinerator plant and equipment: \_\_\_\_\_

Purchase, \$ \_\_\_\_\_ Installation, \$ \_\_\_\_\_ Total, \$ \_\_\_\_\_

Air Pollution Control System \_\_\_\_\_

Base year: 19

Purchase, \$ \_\_\_\_\_ Installation, \$ \_\_\_\_\_ Total, \$ \_\_\_\_\_

Provide the following annual operating costs of each **INCINERATOR**:

Annual operating cost: Base year 19

Operating and maintenance labor, h/hr \_\_\_\_\_  
Operating and maintenance labor costs (including fringe benefits,  
insurance and other labor-related costs) \$/yr \_\_\_\_\_  
Professional and managerial labor, h/yr \_\_\_\_\_  
Professional and managerial labor costs (including fringe benefits,  
insurance and materials), \$/yr \_\_\_\_\_  
Utilities, \$/yr \_\_\_\_\_  
Auxiliary fuel \_\_\_\_\_  
Other (e.g., electricity and water) \_\_\_\_\_  
Wastewater treatment, \$/yr \_\_\_\_\_  
Solid waste disposal, \$/yr \_\_\_\_\_  
Other: \_\_\_\_\_  
Other: \_\_\_\_\_  
TOTALS \$/YR \_\_\_\_\_

Provide the following annual operating costs of each **AIR POLLUTION CONTROL SYSTEM**:

Annual operating cost: Base year 19

Operating and maintenance labor, h/hr \_\_\_\_\_  
Operating and maintenance labor costs (including fringe benefits,  
insurance and other labor-related costs) \$/yr \_\_\_\_\_  
Professional and managerial labor, h/yr \_\_\_\_\_  
Professional and managerial labor costs (including fringe benefits,  
insurance and materials), \$/yr \_\_\_\_\_  
Materials, \$/yr \_\_\_\_\_  
Reagent \_\_\_\_\_  
Bag replacement (fabric filters) \_\_\_\_\_  
Packing replacement (packed-bed scrubbers) \_\_\_\_\_  
Utilities, \$/yr (e.g., electricity and water) \_\_\_\_\_  
Wastewater treatment, \$/hr \_\_\_\_\_  
Solid waste disposal, \$/yr \_\_\_\_\_  
Other: \_\_\_\_\_  
Other: \_\_\_\_\_  
TOTALS \$/YR \_\_\_\_\_

## MAINTENANCE PROCEDURES

Please provide copies of your standard operating procedures (SOP's) for inspection/maintenance of the incinerator and associated monitoring equipment. If SOP's are not available, please provide a summary of the frequency of inspection and the frequency of maintenance functions performed for the following equipment: combustion air system, refractory, waste transport equipment, monitors, air pollution control system, and ash handling system.

Please provide copies of your SOP's for shutdown and startup.

Describe your thermocouple calibration procedures including calibration frequency.

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How often are the thermocouples replaced? \_\_\_\_\_

## PROCESS MONITORING AND CONTROL

What process parameters are monitored, and are the data continuously recorded (chart recorder or data logger)?

	<u>Monitored</u>	<u>Recorded</u>
Primary chamber temperature	_____	_____
Secondary chamber temperature	_____	_____
Primary chamber draft	_____	_____
Secondary chamber draft	_____	_____
Charge size [lb]	_____	_____
Ram feeder cycle [charges/h]	_____	_____
Combustion air flow rate (e.g., fan static pressure)	_____	_____
Auxiliary fuel use	_____	_____
I. D. fan (amps, rpm, static pressure)	_____	_____
Other:	_____	_____
Other:	_____	_____

Please indicate below how the combustion rates and temperatures are controlled in the incinerator.

- ☐ Temperatures in chambers are monitored continuously with continuous adjustments in airflow to maintain set point temperature. Burners are modulated to maintain temperatures, as necessary.
- ☐ Timers: Burners are turned on or off, and airflow is changed from high to low or vice versa based on a timed sequence.
- ☐ The concentration of O<sub>2</sub> in each chamber is monitored, and this information is then used to adjust airflows.
- ☐ Other (please describe): \_\_\_\_\_  
\_\_\_\_\_

## EMISSION MONITORING AND REPORTING

For each continuous emission monitor installed at the facility, please indicate the type of monitor, the location of the monitor, and whether monitoring data are required to be submitted to State or local agencies for review. If data must be submitted for review, please indicate the frequency of submittal.

Type of Monitor	Location	Submit data to State/Local Agency? (Y/N)	Frequency of Submittal
Opacity			
CO <sub>2</sub>			
CO			
HCl			
SO <sub>2</sub>			
NO <sup>x</sup>			
Other (_____)			
None			

How often are the monitors calibrated?

Monitor                      Calibration frequency (state unit of time)

- 1.
- 2.
- 3.
- 4.
- 5.

For each continuous monitor, please indicate the typical range and average values monitored and the units of measure.

Monitor                      Typical range                      Unit of Average Measure

- 1.
- 2.
- 3.
- 4.
- .

Please provide the following capital costs for each continuous emission monitoring system:

Monitor:	Base year	Purchase, \$	Installation, \$	Total, \$
1.	19			
2.	19			
3.	19			

For each monitor estimate the annual costs required for calibration and maintenance.

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Please include a copy of your contract specifying the parameters of the performance testing to be conducted subsequent to completion of incinerator installation. This testing will provide assurance that the incinerator has been installed properly and that the design is adequate.

## EMISSIONS DATA

Please provide the following information on the facility's primary stack (i.e., not the bypass or "dump" stack):

Height (above ground) [ft]: \_\_\_\_\_ Diameter [ft]: \_\_\_\_\_

What is the temperature of the gases at the stack exit [°F]: \_\_\_\_\_

What is the shape of the stack: ☐ circular ☐ rectangular \_\_\_\_\_

What are the stack dimensions:

Diameter (if circular) [ft]: \_\_\_\_\_

Length x width (if rectangular) [ft]: \_\_\_\_\_

Is secondary chamber design likely to produce swirling or turbulent flow in the stack?

Are flow straightening devices installed in the stack (or available if required)?

What is the stack gas flow rate [acfm]: \_\_\_\_\_

Does another device exhaust through this stack? If yes, specify: \_\_\_\_\_

## OPERATOR INFORMATION

Who is responsible for supervising the operation of your incinerator(s)?

- ☐ Housekeeping department  
☐ Engineering department  
☐ Other (specify,) \_\_\_\_\_

How many incinerator operators do you employ?

Do you have a designated incinerator operator(s), i.e., an employee whose only responsibility is to operate the incinerator? ☐ Yes ☐ No

Is the operator required to have special training? ☐ Yes ☐ No

If so, who gives the training?

- ☐ Equipment vendor  
☐ Outside consultant  
☐ Engineering department  
☐ Other, specify: \_\_\_\_\_

Please describe below the type of training that is provided, including the duration and content of classroom instruction and hands-on training. Please provide a copy of training materials used, if any.

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## CHECKLIST FOR MINOR PATHOLOGICAL WASTE INCINERATORS

Yes	No	
		Will the waste burned be exclusively untreated wood, noncoated paper noninfectious human or animal bodies or body parts not in containers and noninfectious human or animal bodies or body parts in containers not containing chlorine?
		Will this incinerator be a multiple combustion chamber incinerator?
		Will this incinerator have an operable door lockout mechanism?
		Will this incinerator have a metal plate, affixed to the incinerator, and inscribed with the essential steps necessary for satisfactory operation of the incinerator?
		Will this incinerator be equipped with a continuous chart recorder which is able to monitor and record the temperature in the secondary combustion chamber to an accuracy of plus or minus 2%?
		Will this incinerator meet the minimum requirements of 99.9% combustion efficiency and 10% opacity?
		Will you keep complete paper records of operators on duty, emission tests performed, incinerator maintenance, combustion chamber temperatures and of the quantity, type, and suppliers of any off-site waste incinerated for at least three years?
		Will you stack test the incinerator within 90 days of startup to determine to determine combustion efficiency and particulate emission rate (or obtain a waiver from the Air Pollution Control Program Enforcement Section)?
		Will you provide a training program to all incinerator operators as developed by the American Society of Mechanical Engineers (ASME), by the incinerator manufacturer or by an individual with more than one (1) year experience in the operation of the incinerator?
		Will this training include basic combustion theory, operating procedures, monitoring of combustion control parameters of the incinerator and all emergency procedures to be followed if the incinerator should malfunction or exceed operating parameters?
		Will written certification of the appropriate training, including a listing of the instructor's qualifications or ASME certification be immediately available at the incinerator site?

\_\_\_\_\_  
Signature of Responsible Member of Company

\_\_\_\_\_  
Date

\_\_\_\_\_  
Title of Signer

\_\_\_\_\_  
Company Name